CHAPTER –IV
RESEARCH METHODOLOGY

4.1 Introduction

In this chapter an attempt is made to present the systematic methodology adopted in the present study such as research design, data collection, sampling, and framework for analysis and tools for analysis and detailed of methodology narrated below.

4.2 Research Design

The research design describes the theoretical plan and structure of the study to find answers to the research problem. It constitutes the outline for data collection, sampling techniques and framework for analysis of data. The present study is both descriptive and analytical nature.

4.3 Data Collection

The present study purely based on the secondary data only. The related data, such as profit and loss account statement, balance sheet and some important key ratios were collected from the published annual reports of selected steel companies in India. Other related information was collected from the Centre for Monitoring Indian Economy (CMIE) Reports, official website of selected steel companies, NSE, BSE, annual report of the ministry of steel, Institute of Financial Management and Research (IFMR), Libraries of various institutions, research publications and various academic research reports. Further the researcher referred various finance related textbooks and journals.
4.4 Sampling

In order to analyse the profitability and dividend performance of steel companies, the details of 72 companies were collected. From this, the steel companies which satisfied the following criteria which have been shortlisted for further research:

1. The companies listed in NSE and BSE.
2. Availability of data at least for the period of 10 years.
3. The company should have at least three years of continues profit during the study period.
4. The companies declared and paid dividend for a minimum of three years during the study period.
5. The selected steel companies have been classified as large and mid cap companies based on market capitalisation.

The companies’ stocks with market capitalisation of Rs. 10,000 crore or more are large cap companies and which are listed below:

**Large cap Companies**

i. Tata Steel Limited

ii. Steel Authority of India Limited (SAIL)

iii. JSW Steel Limited

iv. Visa Steel Limited

The companies’ stocks with market capitalisation between Rs. 2 crore to Rs. 10 crore are mid cap companies and which are listed below:

**Mid Cap Companies**

i. Bhushan Steel Limited

ii. Jindal Steel and Power Limited (JSPL)

iii. Kalyani Steels Limited
4.5 Framework for Analysis

The various statistical tools are used to analyse the profitability and dividend performance of the selected steel companies in India. The study of financial statement such as profit and loss accounts and balance sheets through profitability ratios, solvency ratios, turnover ratios and dividend ratios constitutes in the framework of analysis. The framework of analysis contains data analysis by using of SPSS package with applications of ratio analysis and statistical tools such as Mean, Standard Deviation (SD), Coefficient of Variation (CV), growth rates (Annual Growth Rate (AGR), Average Annual Growth Rate (AAGR), Linear Growth Rate (LGR) and Compound Growth Rate (CGR)), cubic model, analysis of variance (ANOVA) F-Test, multiple regression and discriminant function analysis of the financial parameters of data.

4.6 Tools for Analysis

Ratio Analysis

Ratio analysis is an important traditional tool for analysis of financial statement of the company. It assists to understand the financial strength and weakness of companies in the aspects of liquidity, profitability and operational efficiency undertaking. The ratio analysis is used in the present study, to measure and compare the financial efficiency of selected steel companies in India.

Mean

The mean is used to get one single value that represents the characteristics of the entire data. It is the central tendency measure representing the arithmetic average of a set of observations.
**Standard Deviation**

Standard deviation is the positive square root of variance which measures of dispersion in the same units as the original data. Lower standard deviation leads to lower dispersion and higher standard deviation leads to greater dispersion.

**Coefficient of Variation**

The coefficient variation is a relative measure in consistency. The greater coefficient variation shows conversely lower consistency or more variable and less coefficient show more consistency.

**Compound Growth Rate (CGR)**

The Compound Growth Rate measures average growth or constant rate of growth followed by Annual Growth Rate (AGR), Average Annual Growth Rate (AAGR), Linear Growth Rate (LGR) over a period. Thus smoothing increases in the rate as one number. The lower rate shows the hidden growth of fluctuations.

**Cubic Model**

A cubic relationship is one, in which a line relating the means to the level of the independent variable. It has two inflection points, in other words, it changes direction twice. This trend equation has been used to identify the forecasted value of financial variables for the next three years 2014-2016

**Analysis of Variances (ANOVA)**

Anova is the best statistical tool, which is used to test whether the means of more than quantitative variables are equal. It consists of classifying and cross classifying of statistical results and testing the significance difference in the means of specified classification. For the purpose of analyzing the equality of means for different ratios of different companies ‘ANOVA’ test is used in the present study.
Multiple Regressions

The main objective in using this technique is to predict the variability, the dependent variable based on its covariance with all the independent variables. One can predict the level of dependent phenomenon through multiple regression analysis for given independent variables. In this present study the prediction of profitability and dividend have been studied by using of multiple regressions.

Discriminant Function Analysis

Discriminant analysis is a statistical technique which used to studying the differences between two or more groups with respect to several variables and it is provide a means of classification of individual in the group. It is most closely associated to infer the relative importance of each variable used to discriminate between different groups.

4.7 Period of Study

The researcher has taken a period of 10 years to study the financial performance of steel companies from 2003-2004 to 2012-2013.

4.8 Chapter Summary

This chapter includes the blueprint of the present research study. It is mainly contains the nature of research study, data collection method, sampling, and framework for analysis which is major tools used to analyse of data. It is very useful to the researcher, to analyse and interpret the data in order to find solution for research objectives framed. Finally the period of the study quoted in this chapter. The next chapter displays the major analysis and interpretation of data based on framework of study.